BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

CLAIMS:

1. A tension detection apparatus for detecting tension acting on an endless loop power transferring member that transfers torque from a drive source to at least one driven device, the apparatus comprising:

a supporting member;

a bearing attached to the supporting member;

a rotor rotatably supported by the supporting member with the bearing in between, wherein the power transferring member is engaged with the rotor;

a deformation member located between the supporting member and the bearing, wherein the amount of deformation of the deformation member varies in accordance with the tension of the power transferring member;

a deformation detection device, wherein the deformation detection device detects the deformation amount of the deformation member at at least two positions that are spaced from each other in a circumferential direction of the bearing; and

a computer, wherein, based on the deformation amount detected by the deformation detection device, the computer computes unbalanced load that is applied to the supporting member by the tension of the power transferring member through the rotor, the bearing, and the deformation member, and wherein, based on the computed unbalanced load, the computer computes the tension of the power transferring member.

2. The apparatus according to claim 1, wherein the deformation detection device includes a pair of deformation sensors.

3. The apparatus according to claim 2, wherein the deformation member is an annular member having a plurality of curved portions, wherein the curved portions protrude radially

outward and are arranged in a circumferential direction of the annular member, and wherein the deformation sensors are each located in one of spaced two of the curved portions, respectively.

4. The apparatus according to claim 3, wherein the deformation member is a tolerance ring.

5. The apparatus according to claim 1, wherein the bearing is a roller bearing including an inner race, an outer race, and rolling bodies located between the races, and wherein the rotor is attached to one of the inner and outer races, and the deformation member is located between the supporting member and the other one of the inner and outer races.

6. The apparatus according to claim 1, wherein the deformation member and the deformation detection device are provided at the driven device.

7. The apparatus according to claim 6, wherein the rotor includes a pulley that is coupled to a rotary shaft of the driven device such that the pulley rotates integrally with the rotary shaft, wherein the power transferring member is engaged with the pulley, wherein a housing of the driven device has a boss through which the rotary shaft extends, the boss functioning as the supporting member, and wherein, about the boss, the deformation member, the bearing, and the pulley are arranged in this order in a radially outward direction.

8. The apparatus according to claim 6, wherein the driven device is a compressor including a gas compression mechanism driven by the rotor.

9. The apparatus according to claim 1, wherein the

deformation member and the deformation detection device are provided at the drive source.

10. The apparatus according to claim 1, wherein the power transferring member is engaged with an idle pulley, the idle pulley functioning as the rotor, wherein the deformation member and the deformation detection device are located between the supporting member and the bearing which rotatably support the idle pulley.

11. A torque detection apparatus for detecting torque transmitted to a driven device by a drive source through an endless loop power transferring member, wherein the driven device has a housing and a rotor, wherein the rotor is rotatably supported by the housing with a bearing, and wherein the power transferring member is engaged with the rotor, the apparatus comprising:

a deformation member located between the housing and the bearing, wherein the amount of deformation of the deformation member varies in accordance with the tension of the power transferring member;

a deformation detection device, wherein the deformation detection device detects the deformation amount of the deformation member at at least two positions that are spaced from each other in a circumferential direction of the bearing; and

a computer, wherein, based on the deformation amount detected by the deformation detection device, the computer computes unbalanced load that is applied to the housing by the tension of the power transferring member through the rotor, the bearing, and the deformation member, wherein, based on the computed unbalanced load, the computer computes tension of an advancing section and tension of a trailing section of the power transferring member in the moving direction of the power transferring member with respect to the rotor, and wherein,

based on the difference between the computed tensions, the computer computes the torque.

12. The apparatus according to claim 11, wherein the driven device is a compressor including a gas compression mechanism driven by the rotor.

13. The apparatus according to claim 11, wherein the deformation member is a tolerance ring.

14. A torque detection apparatus for detecting torque transmitted to an endless loop power transferring member by a drive source, the apparatus comprising:

a supporting member;

a bearing attached to the supporting member;

a rotor rotatably supported by the supporting member with the bearing in between, wherein the power transferring member is engaged with the rotor;

a deformation member located between the supporting member and the bearing, wherein the amount of deformation of the deformation member varies in accordance with the tension of the power transferring member;

a deformation detection device, wherein the deformation detection device detects the deformation amount of the deformation member at at least two positions that are spaced from each other in a circumferential direction of the bearing; and

a computer, wherein, based on the deformation amount detected by the deformation detection device, the computer computes unbalanced load that is applied to the housing by the tension of the power transferring member through the rotor, the bearing, and the deformation member, wherein, based on the computed unbalanced load, the computer computes at least one of tension of an advancing section and tension of a trailing section of the power transferring member in the moving

direction of the power transferring member with respect to the drive source.

15. The apparatus according to claim 14, wherein the power transferring member transfers the torque to a driven device, wherein the driven device is located adjacent to the drive source and in the trailing section, and wherein the deformation member and the deformation detection device are provided at the driven device;

wherein a tension applying mechanism is located adjacent to the drive source and in the advancing section, wherein the apparatus further includes an applied force detection device for detecting force applied to the power transferring member by the tension applying mechanism, and

wherein the computer computes the tension of the trailing section based on the deformation amount detected by the deformation detection device, and the computer computes the tension of the advancing section based on the applied force detected by the applied force detection device, and wherein, based on the difference between the computed tensions, the computer computes the torque.

16. The apparatus according to claim 15, wherein the deformation member is a tolerance ring.

17. The apparatus according to claim 14, wherein a driven device to which the torque is transmitted by the drive source through the power transferring member is located adjacent to the drive source and in the trailing section, wherein a section of the power transferring member between the drive source and the driven device is engaged with an idle pulley, the idle pulley functioning as the rotor, and wherein the deformation member and the deformation detection device are located between the supporting member and the bearing which rotatably support the idle pulley,

wherein a tension applying mechanism is located adjacent to the drive source and in the advancing section, wherein the apparatus further includes an applied force detection device for detecting force applied to the power transferring member by the tension applying mechanism, and

wherein the computer computes the tension of the trailing section based on the deformation amount detected by the deformation detection device, and the computer computes the tension of the advancing section based on the applied force detected by the applied force detection device, and wherein, based on the difference between the computed tensions, the computer computes the torque.

18. The apparatus according to claim 17, wherein the deformation member is a tolerance ring.

19. The apparatus according to claim 14, wherein the deformation member and the deformation detection device are provided at the drive source, and wherein the computer computes the both tensions based on the deformation amount detected by the deformation detection device, and wherein, based on the difference between the computed tensions, the computer computes the torque.

20. The apparatus according to claim 19, wherein the deformation member is a tolerance ring.